Amendments to the Specification:

Please replace the paragraph starting at page 2, line 3, with replacement paragraph as follows:

One drawback of gaseous fuels is that they exhibit significantly higher ignition threshold temperatures than do diesel fuel, lubricating oil, and other liquid fuels traditionally used in compression ignition engines. The compression temperature of the gas and air mixture is insufficient during operation of standard compression ignition engines for autoignition. This problem can be overcome by igniting the gaseous fuel with a spark plug or the like. It can also be overcome by injecting limited quantities of a pilot fuel, typically diesel fuel, into each combustion chamber of the engine in the presence of a homogenous gaseous fuel/air mixture. The pilot fuel ignites after injection and burns at a high enough temperature to ignite the gaseous fuel charge by homogenous charge compression ignition (HCCI). Pilot-ignited, compression ignition, gas-fueled engines are sometimes called "dual fuel" engines, particularly if they are configured to run either on diesel fuel alone or on a combination of diesel fuel and a gaseous fuel. They are often sometimes referred to as MicroPilot® engines (MicroPilot is a registered trademark of Clean Air ~~Partners~~Power, Inc. of San Diego, CA), particularly if the pilot fuel injectors are too small to permit the use of the engine in diesel-only mode. The typical true "dual fuel" engine uses a pilot charge of 6 to 10% of maximum fuel rate. This percentage of pilot fuel can be reduced to 1% of maximum, or even less, in a MicroPilot® engine. As applied to gas-fueled engines, the invention applies to true dual fuel engines, MicroPilot® engines, and other pilot-ignited, compression ignition, gas-fueled engines as well. It will be referred to simply as a "dual fuel engine" for the sake of convenience.

Please replace the paragraph starting at page 4, line 9, with replacement paragraph as follows:

HCCI offers an attractive alternative to traditional diesel engines because it has no throttling losses. Unlike in conventional compression ignition engines, combustion occurs simultaneously throughout the cylinder volume rather than as a flame front. However, heretofore, HCCI research has focused on the use of a gaseous fuel as the primary fuel. Minimum research has been done with respect to an HCCI engine having liquid fuel as the primary fuel due to difficulties associated with the HCCI combustion of liquid fuel. For instance, it is difficult to introduce a liquid fuel in a vapor state and to homogenously mix it with air. In addition, because both the primary fuel and the pilot fuel are in liquid form, both fuels will ignite at the same time unless the fuels are carefully selected to have different autoignition temperatures.

Please replace the paragraph starting at page 7, line 6, with replacement paragraph as follows:

Fig. 5 corresponds to Fig. ~~5~~4 but shows the injector in its open position;

Please replace the paragraph starting at page 9, line 7, with replacement paragraph as follows:

Pursuant to the invention, pilot fuel injection and/or ignition are controlled in a pilot ignited compression ignition engine so as to maintain a relationship Dp/Di of < 1, where Dp is the duration of the pilot fuel injection event and Di is the ~~injection~~ ignition delay period, as measured from the start of initiation of pilot fuel injection (Tp) to the start of pilot fuel autoignition (Ti). Although this control proceeds contrary to conventional wisdom, the inventors

have discovered that the mixing period (Dm) resulting from maintaining an ignition delay period that is longer than an injection period maximizes ignition intensity by permitting the injected pilot fuel to become thoroughly distributed through and mixed with the second fuel in the combustion chamber prior to ignition. This, in turn, results in improved premixed burning of a nearly homogeneous mixture of the pilot fuel, the second fuel, and air and dramatically reduced NOx emissions. The second fuel may be either a gaseous fuel or a liquid fuel. In either case, the pilot fuel should have a narrower band boiling point temperature range and lower autoignition temperature than the second fuel. In addition, whether the primary fuel is in gaseous or liquid form, fuel supply is preferably controlled to obtain HCCI combustion in the combustion chamber. In the case of a liquid fuel, the homogenous charge can be obtained by injecting liquid fuel in the form of millions of finely atomized droplets having a mean diameter in the micron range.

Please replace the paragraph starting at page 13, line 7, with replacement paragraph as follows:

As is further shown in Fig. 2, the turbocharging subsystem of the intake air control system includes a turbocharger 70 and an aftercooler 72 provided in line 62 upstream of the valve 60 and intake port 66. Operation of the turbocharger 70 is controlled in a conventional manner by a wastegate 74 and a turbo bypass valve 76, both of which are electronically coupled to the controller 56 (detailed below). Other intake airflow modification devices, such as a supercharger, a turbo-air bypass valve, or EGR modification devices, such as an expansion turbine or an aftercooler, may be employed as well. Examples of ways in which these devices may be operated to adjust engine operating parameters such as air charge temperature (ACT),

excess air ratio (lambda), and manifold absolute pressure are provided in co-pending and commonly assigned U.S. Pat. App. Ser. No. 08/991,413 (the '413 application) and entitled Optimum Lambda Control for Compression Ignition Engines, filed in the name of Beck et al. The disclosure of the '413 application is incorporated by reference by way of background information.

Please replace the paragraph starting at page 14, line 2, with replacement paragraph as follows:

The OSKA-ECIS fuel injector assembly 32 utilized in the preferred and illustrated embodiment of the invention, comprises 1) a high discharge coefficient injector 300, 2) a so-called OSKA infringement target 302, and 3) a toroidal chamber 304 located in a cavity in the upper surface 360 of the piston 16. The injector 300 discharges a high-velocity stream at a rapidly falling rate so as to provide an Expanding Cloud Injection Spray (ECIS). The injected stream of fuel impinges against the target 302, which breaks the fuel droplets into smaller droplets and reflects the fuel into the toroidal chamber 304 as a dispersed, vaporized spray. The spray then swirls through the toroidal chamber 304 in a highly turbulent manner so as to maximize the rate of penetration, distribution, vaporization, and mixing with the air/fuel mixture in the chamber 18.

Please replace the paragraph starting at page 20, line 5, with replacement paragraph as follows:

Referring again to Figs. 4 and 5, the OSKA target 302 is generally of the type disclosed in U.S. Pat. No. 5,357,924, the subject matter of which is incorporated herein by reference. Target 302 is mounted on a platform 350 extending upwardly from the center of the ~~cavity~~

toroidal chamber 304. The target 302 preferably comprises a flat-headed insert threaded or otherwise inserted into a bore 352 in the top of the platform 350. The insert is hardened when compared to the remainder of the cast metal piston 16 to mitigate against a tendency towards erosion. An upper surface 354 of the target 302 comprises a substantially flat collision surface for the incoming stream of injected fuel. An annular area 356, surrounding the target 302 and formed radially between the edge of the platform 350 and the target 302, serves as a transition area that promotes flow of reflected fuel into the toroidal chamber 304 in a manner that enhances the swirling motion provided by the toroidal shape of the chamber 304.

Please replace the paragraph starting at page 20, line 17, with replacement paragraph as follows:

The chamber 304 is not truly toroidal because the top of the toroid is reduced by truncating an upper surface 360 of the piston 16. This truncation (1) provides the clearance volume and compression ratio required for a compression ignition engine, and (2) truncates an inner periphery 362 of the upper surface of the toroid to prevent the formation of a knife-edge, thereby rendering the piston's structure more robust. The degree of truncation is set to cause the upper surface 360 of the piston ~~14~~ 16 to nearly contact the lowermost surface 364 of the cylinder head ~~16~~ 14 at the piston's TDC position, thereby enhancing the so-called "squish mixing" effect that results when an air/fuel mixture is trapped between a very small gap between the uppermost surface 360 of the piston 16 and the lowermost surface 364 of the cylinder head 14.